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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,426	04/03/2000	Kyeong Jin Kim	8733.20102	4200
30827	7590	10/07/2003	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			NGUYEN, DUNG T	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2871	

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/541,426

Applicant(s)

KIM ET AL.

Examiner

Dung Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Response to Amendment***

Applicants' amendment date 007/14/2003 has been received and entered.

By this amendment, claims 1-57 are currently pending in the present application.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 57 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 57, such claim recites a limitation of "the first substrate does not require an electrode controlling the alignment directions" which not disclose in the original specification. In addition, such negative limitation fails to comply with the written description requirement. *See MPEP 2173.05(i)*.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claims 1-5, 7-22, 24, 26, 29-33, 35-50, 52 and 54 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, as state in the final office action dated 08/14/2002.

Regarding claims 1-5, 7, 11-22, 24, 26, 29-33, 35, 39-50, 52 and 54, Koma discloses a multi-domain liquid crystal display (LCD) device (figures 3, 8 and 10) comprising:

a first substrates (10) and a second substrate (30) facing each other;

a homeotropic liquid crystal layer (41), wherein an alignment direction of the liquid crystal layer in one region is different from that of the other regions during an operation of the pixel (see figure 10);

a plurality of gate bus lines (12), a plurality of data bus lines (20), a plurality of TFTs (15) including a gate insulator (13), a passivation layer (21), and a pixel electrode (17);

an electric field inducing window (control window 33b) in the pixel electrode, so as the pixel electrode is divided into at least two regions (e.g. four regions/domains in figure 10);

a polyimide alignment layer (23) having a pretilt angle substantially  $1^{\circ}$  (respect to normal line);

Although Koma does not disclose a photo alignment forming on at least one of the first and second substrates, Koma does disclose that the alignment layer is formed by polyimide which can be a photoalignment as shown by Auman et al. (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the polyimide photo alignment film of Auman et al. by using a photo-aligning treatment such as exposing the alignment film to UV light in order to avoid electrostatic discharge caused by rubbing process (col. 2, ln. 48). Furthermore, it would have been obvious to one having

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ordinary skill in the art at the time the invention was made to use an alignment material selected from the group of PVCN, PSCN and CelCn based compound, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 8-10 and 36-38, the limitation of the gate insulating and/or the passivation layer and/or the pixel electrode are/is patterned recites a one-step process which does not further limit the structure of the claimed LCD device. Therefore, the process limitation does not have patentable weight.

5. Claims 27-28 and 55-56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Sugiyama et al., US Patent 5,757,455, as stated in the previous office action.

Regarding the above claims, the modification to Koma does not disclose a negative uniaxial film or a negative biaxial film disposed on at least one substrate. Sugiyama et al. disclose a compensation film (e.g., a negative uniaxial film 49) can be formed over at least one substrate of an LCD panel (41) (see figure 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a negative uniaxial film on at least one substrate of an LCD device because it is a common practice in the art to improve contrast and/or reduce inversion, often in the same viewing areas in an LCD device (see col. 11, lines 30-41).

6. Claims 6 and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Applicant's submitted prior art, Koma et al., figure 5, "No-Rub Multi-Domain TFT Using

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Surrounding-Electrode Method", SID, 1995, pages 869-872, as stated in the previous office action.

Regarding claims 6 and 34, although Koma ('556) does not disclose the "L-shaped" TFT in the LCD device, it would have been obvious to one skill in the art to form a TFT having a "L-shaped" as evidence from the Applicant's submitted prior art, Koma et al. figure 5 since it is well known in the art in order to increase an aperture ratio of an LCD device.

7. Claims 23 and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Bos et al., US Patent No. 6,141,074, as stated in the previous office action.

Regarding the above claims, the modification to Koma discloses the claimed invention as described above except for the liquid crystal layer which has a positive or negative dielectric anisotropy and chiral dopants. Bos et al. do disclose a multi-domain LCD which can be formed with a positive or negative dielectric anisotropy liquid crystal layer (see Summary of the Invention). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a liquid crystal layer having a positive dielectric anisotropy or negative dielectric anisotropy because the use of one conventional material over another merely depends on the desire of the manufacturer (i.e., homogeneous or homeotropic alignment) and/or the availability and practicality of the material for the chosen manufacturing process (see Summary of the Invention).

8. Claims 51 and 53 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Van De Witte, US Patent No. 5,936,692, as stated in the previous office action.

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Regarding the above claims, Koma discloses the claimed invention as described above except for the liquid crystal layer including chiral dopants. However, Van De Witte does disclose that an LCD can be included a chiral dopant (col. 2, ln. 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a chiral dopant in an LCD device as shown by Van de Witte since it is a common practice in the art to obtain a uniform twist sense (col. 2, ln. 24).

#### ***Response to Arguments***

9. Applicant's arguments filed 07/14/2003 have been fully considered but they are not persuasive as follow:

##### ***Applicants' arguments:***

1. None of the cited references, singly or in combination, teaches or suggests the feature "a photo-alignment layer having a pretilt angle on at least one of the first and second substrate" (amendment, page 9).

2. There is no motivation for one of ordinary skill to combine the cite references and arrive at the claimed invention with any reasonable expectation of success (amendment, pages 9-10).

3. Claim 57 recites an advantage over Koma in that the present invention can obtain a multi-domain effect without the orientation control electrode (amendment, page 10).

4. Applicants further submit that this is a hindsight reconstruction of the present invention, which is improper (amendment, page 10).

##### ***Examiner's responses to Applicants' arguments:***

1. The Examiner agrees with Applicants that the Koma's reference does not disclose the feature "a photo-alignment layer having a pretilt angle on at least one of the first and second substrate" as recited in claims 1 and 29; the combination of Koma and Auman et al., however, does disclose such limitation as claimed. In particular, the Koma's device comprising an orientation film (23) being laminated on the full face (i.e., face of substrate) for vertical orientation (pretilt angle formed to the initial vertical orientation of the liquid crystal directors) as a surface orientation treatment (col 6, lines 10-12). Although Koma does not disclose the pretilt angle controlled by a photo alignment process, Auman et al. do disclose a method of forming an alignment layer (i.e., forming pre-tilt angle) by using a photo-aligning treatment (col. 2, fifth paragraph). Therefore, the combination of Koma and Auman et al. would arrive at the claimed invention as well.

2. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as stated in the previous office action, the combination of Koma and Auman et al. would have been obvious to one skilled in the art in order to avoid electrostatic discharge caused by rubbing process (col. 2, ln. 48).



3. As stated above (paragraphs 1-2) , a negative limitation of claim 57 subjected to the first paragraph of 35 U.S.C. 112 as contained a subject matter which was not described in the specification. Therefore, such limitation has not been entered and considered.

4. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). More particularly, the modification to the Koma's device is just changing the alignment surface treatment by light instead of rubbing method. Therefore, such combination would have been obvious to one skilled in the LCD art.

Accordingly, the rejection of claims 1-57 stand.

### *Conclusion*

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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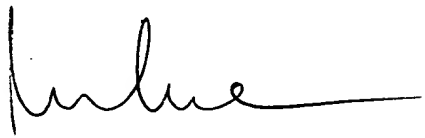
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 703-305-0423. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DN  
09/03/2003



**Dung Nguyen**  
**Patent Examiner**  
**Art Unit 2871**